



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,344	08/19/2003	Norman L. Weinberg	ESP:106e US	3828
21807	7590	08/02/2006	EXAMINER	
HOWARD M. ELLIS SIMPSON & SIMPSON, PLLC 5555 MAIN STREET WILLIAMSVILLE, NY 14221			WILKINS III, HARRY D	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/643,344

Applicant(s)

WEINBERG ET AL.

Examiner

Harry D. Wilkins, III

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-30 and 33-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 42-48 is/are allowed.
- 6) ☒ Claim(s) 28-30 and 33-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Status

1. The rejection of claims 42-48 based on 35 USC 112, 2nd paragraph have been withdrawn in view of Applicant's amendment correcting the recitation of the power supplies utilized by the present invention.

Effective Filing Date

2. Applicant has asserted an effective filing date of 10 October 1989, the filing date of US Application no. 07/419,371. However, upon review of the specification of that Application, the present claims fail to find complete support in that disclosure. In particular, the present claims recite a pulse duration no greater than 0.10 seconds (100 milliseconds). In the '371 Application, the only disclosure of the pulse duration occurs on page 9, lines 1-8, where the pulse duration was stated to be "from a fraction of a picosecond to several milliseconds". "Several milliseconds" cannot be understood by one of ordinary skill in the art to mean up to 100 milliseconds as is presently claimed. Thus, Applicant is granted the effective filing date of 5 June 1992, the filing date of US Application no. 07/894,099. The range of 100 milliseconds or less is supported in the '099 Application in the paragraph spanning pages 12 and 13.

3. Therefore, Pons et al (WO 09/10935) qualifies as prior art under 35 U.S.C. 102(b).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1742

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pons et al (WO 90/10935) in view of Spaepen et al (US 3,944,473).

Pons et al teach (see pages 19-29) an apparatus for electrolyzing water for the production of hydrogen, oxygen and heat that included an electrochemical cell having a palladium cathode (i.e.-isotopic hydrogen storage cathode), an electrically conductive anode and a compartment for holding an ionically conducting electrolyte comprising water and a pulsed power supply for the electrochemical cell comprising a means for generating a repeating sequence of voltages across the anode and cathode.

The difference between the claimed apparatus and the apparatus of Pons et al is that the pulsed power supply of Pons et al generates only a single voltage regime consisting of a voltage sufficient to enhance cathodic absorption of hydrogen. Thus, Pons et al fail to teach a second voltage regime consisting of at least one voltage pulse which is at least two times the voltage of the first cell voltage regime in magnitude with a duration not greater than 0.10 seconds.

Spaepen et al teach (see abstract) a method of influencing an electrocatalytic reaction proceeding at an electrode. The method included superimposing a voltage regime of pulses upon the cell voltage to enhance the efficiency of the cell. Spaepen et al further teach a pulsed power supply for providing the voltage regime of pulses. Spaepen et al expressly disclose (see col. 1, lines 52-57 and col. 2, line 49 to col. 4, line 22) using the process with the oxidation of methanol on a platinum electrode or the

Art Unit: 1742

oxidation of hydrogen, hydrazine or ammonia on an alloy electrode. However, Spaepen et al further teach (see col. 4, lines 23-35) that the principle of the invention would aptly apply in any electrocatalytic reaction where the at least two reactions occur at an electrode and the overall reaction included a series of partial reactions occurring at the electrode, the voltage pulse regime could be used to favor one reaction product versus another to preferentially form a desired product as opposed to forming the undesired product.

It is noted that Pons et al teach (see page 25) that multiple reactions occur at the cathode of the cell, some forming the desirable adsorbed hydrogen/deuterium, and others forming undesired hydrogen/deuterium gas.

Therefore, it would have been obvious to one of ordinary skill in the art to have added the pulsed power supply of Spaepen et al to the apparatus of Pons et al for executing not only the voltage regime taught by Pons et al (simple pulsed voltage), but further to apply the potential pulse train taught by Spaepen et al because Spaepen et al teach that the potential pulse train was capable of allowing preferential formation of a desired product when multiple reaction products could be formed at an electrode.

Regarding the fact that the voltage pulse was of a magnitude at least twice the size of the first voltage regime and the duration was no longer than 0.10 seconds, the pulsed power supply of Spaepen et al would have been capable of operating with the claimed operating parameters. Since these parameters are related to the manner of operation of the claimed apparatus, they have not been given patentable weight since

Art Unit: 1742

the apparatus of Pons et al in view of Spaepen et al would have been fully capable of operating in the claimed fashion. See MPEP 2114.

Regarding claims 29, 30, 33-41, each of these claims are related to the manner of operation of the claimed apparatus, thus, they have not been given patentable weight since the apparatus of Pons et al in view of Spaepen et al would have been fully capable of operating in the claimed fashion. See MPEP 2114.

Allowable Subject Matter

6. Claims 42-48 are allowed. However, it should be noted that in line 7, "triple" should now be "quadruple" since there are four power supplies.

7. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not reasonably suggest the disclosed pulsed power supply including four individual power supplies, an oscillator, a counter and a decoder.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1742

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Harry D. Wilkins, III
Primary Examiner
Art Unit 1742

hdw